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Honey-Booth at the Chicago Food and Health Exposition, in October, 1897.—See page 88.

CONTRIBUTED ARTICLES

Improvements in the Rearing of Bees.

BY ADRIAN GETAZ.

Can it be done? That is, can we by judicious selection create a race of bees far superior to those we possess now?

Certainly we can. See what has been done in the line of other domestic animals—cattle, horses, dogs, chickens, pigeons, etc. And in the line of bees themselves a careful selection has brought the 5-banded and the Albinos out of the common Italians.

What are the qualities to be sought? Well, hardiness to stand the winter; prolificness of the queens; activity; longevity; beauty; and other minor points.

THE SIZE OF BEES.

In connection with the above-named qualities, the length of the bee's tongue has an important bearing. There is no possible doubt that bees with longer tongues than those our actual strains of bees possess, would be able to gather nectar out of many flowers which are too deep for them under present conditions. One of these flowers is the common red clover. And if we consider that with the progress of agriculture, the white clover, forest trees, and wild plants, are disappearing, while the red clover will hold its own, and even increase in area, the importance of having bees able to gather the nectar from it is incontestable.

It is evident that a larger-sized bee would have a longer tongue, so in that respect an increase of size is desirable. The question whether it would be otherwise an advantage has been very much discussed. For my part, I say unhesitatingly yes, and a big yes at that.

We may presume that a larger bee would fly as fast, if not faster than a smaller one. It is said that large insects are sluggish compared to small ones; and that is often true in comparing different species, because there is a difference of constitution, shape, etc., besides the difference of size; and even then it is not always true. A fly and a mosquito are much smaller than a bee, and certainly do not fly any faster.

Supposing that the larger bee does not fly any faster, and does not gather the nectar any quicker than the smaller one, there would be yet a considerable saving of time in going and coming. For instance, if the large bee can take in one load twice as much as the small one, the time to make one trip to the fields and back would be saved each time, and this would be a considerable item, especially during a heavy flow.

Among the different kinds of wild bees of our country, only the largest (bumble-bees) gather honey in anything like a quantity. In India, there are quite a number of different kinds of bees similar to ours, some not larger than ordinary flies, but only the large kinds store more honey than they need, and the largest kind, the famous *Apis dorsata*, build combs several feet in length, and produce more honey than any other wild bee known.

INFLUENCE OF FOUNDATION ON BEES.

The first step to take would be to use a larger size of foundation cells. The size of the cells limits the size of the bees, as any one who has had drones reared in worker-cells knows. Before the foundation was in general use, there was a considerable difference in the size of the different strains of bees, as can be ascertained by consulting the old text-books. Now, we do not hear any more of it, because the general use of a uniform foundation has brought all the strains of bees to a uniform size.

A difficulty to avoid would be an over-production of drones. The only prevention that I can see would be to increase the size of cells only of a small proportion at first, say one-fifth, and when the new strain of bees should be well established, make another increase, and repeat the process if found practicable.

SELECTION FOR BREEDING.

But the increase of the size of the cells is not the only requisite to obtain larger sized bees. Besides that, other qualities have to be considered. So it will be necessary to select the queens producing the largest and best bees, all considered. Here we meet with serious difficulties. In improving cattle and other large animals, every individual can be

examined, all its qualities and defects considered and tabulated, and a proper selection as to mating can be made. With bees the case is altogether different. We cannot examine each bee and put down in a book her qualities and defects, and the length of time she may live. Worse than that, we cannot select the drone even if we could ascertain beyond doubt which individual drone is the best. Practically, the only way is to rear the queens and drones from the colonies having given the best results, and destroy the drones from the other colonies by cutting the drone-comb or using the queen-trap.

CONCERNING THE PERFORATED ZINC.

Perforated zinc to control the production of drones and prevent swarming is an old invention, but never came into general use until the use of a uniform foundation produced uniform-sized bees, for perforations entirely too small for the workers of large size would have permitted the queens of small strains to go through. As to preventing the drones, the case is much easier. The difference of size between queens and workers, so far as the thorax is concerned, is very small, while between workers and drones it is considerable. The small drones reared in worker-cells cannot pass through the zinc. With larger bees we would have to adopt larger perforations. Probable the increase in size of the perforations would have to equal the increase in size of the cells. If the zinc were to retain the queens, it would be necessary, in selecting, to choose not only the queens producing the largest workers, but the largest queens themselves, which is entirely another thing.

Perhaps I should add that larger bees and larger foundation cells would also require a larger hive, or, rather, a larger brood-nest.

APIS DORSATA.

An increase of size in bees is necessarily connected with the introduction of *Apis dorsata*. As to its desirability we find as much divergence of opinions as concerning an increase of size in our common bees. I think these bees would likely be a valuable acquisition. They undoubtedly produce a larger quantity of honey in their native country than all the other kinds of bees. They are as manageable as our bees, according to Frank Benton, who is unquestionably a competent bee-keeper. The fact that the natives climb the trees almost naked, and cut off the combs to take the honey, shows that they can be handled as well as common bees.

It is not likely that they could stand much cold weather, so it would be well to introduce them at first only in the most southern States.

The fact that they build their combs in the open air is not an objection. It is merely a question of climate. All kinds of bees build in the open air in the tropical countries.

One objection exists: Their drones and workers are said to be reared in cells of the same size. If it is really so, the control of the over-production of drones by cutting the drone-combs could not be resorted to, which would certainly be a disadvantage.

INFLUENCE OF THE NURSE-BEES.

Some incidental questions merit consideration. One is the influence of the nurses, that is, the bees nursing the brood. It has been claimed by some superficial writers that the characteristics of the nurse-bees were transmitted to the young bees through their feed. It would take quite a long article to show the error of his opinion, however I may state here that the food taken by the brood is so completely transformed through the chemical processes accompanying the digestion, that whatever "moral" or "intellectual" qualities it might have before being eaten by the young bees, have certainly disappeared by the time the process of digestion and assimilation is completed.

The influence of the nurses or the adult bees is one of example. If the old bees are cross or inclined to rob, the young ones will more or less follow their example, and this is why these characteristics will sometime persist after the queen has been changed.

It has also been said that the ability to stand bad winters must be transmitted by the nurses, for how can the queen, which is always in the hive, transmit to her workers the faculty of resisting the cold when she does not possess it herself? This seems a strong argument at first, but it is none at all, after all.

Here are two queens, No. 1 and No. 2. No. 1 produces workers able to resist the cold weather, while the workers of No. 2 cannot. Well, when the winter comes, the workers of No. 2 will die out; so will the queen, necessarily; so by the next summer only queen No. 1 will remain, and produce not only workers but young queens, which, like herself, will have

workers able to withstand the cold. It is a mere question of the survival of the fittest, and the influence of the nurses is a question of good and bad example to the young generation.

The quality and quantity of the food have, however, an influence on the development of the eggs and larvae, and in that way the nurses have an indirect influence through the food they provide. This influence is strong enough in bees to change the development of a fecundated egg from a worker to a queen. But the germs of the organs of both worker and queen were present in the egg, and the difference is that a certain set of organs was developed in one and not the other.

INFLUENCE OF THE DRONE UPON THE QUEEN.

Another point has been erroneously advanced. It is well known and incontestable that the drones are born of unfecundated eggs, and that all the eggs of an unfecundated queen, if she is otherwise sound, will hatch, but hatch only drones, while all the fecundated eggs of an impregnated queen will hatch workers or queens, according to the food they receive. Well, some have claimed that the drones will have some of the qualities of the drone which fecundated their "mother." This seems hardly possible. When a queen is fecundated the male germs enter a little sack inside of the queen's body, and remains there completely separated from her eggs or any other of her organs. Her eggs are produced in another and entirely different part of her body. As they mature and come out they pass before the opening of the said little sack. If the sack is kept closed up, the eggs come out unimpregnated, and hatch out drones. If the sack is opened, one or more male germs come out, enter the egg as it passes, and that egg will produce a worker or a queen.

A CAUTION.

A fact often overlooked is that the bees of an apiary will always mix, more or less, from one hive to another. Many apiarists have thought that the queens they bought were not pure, or that their 5-banded queens did not produce all 5-banded workers, when the faulty bees they saw had come from other hives. I have had proof of such cases time and again in my own apiaries. To be sure, in every case it is necessary to observe carefully the very young or hatching bees.

Knox Co., Tenn.



Snow in the Apiary—Its Advantages.

BY C. P. DADANT.

Since our fields have put on their warm white winter clothing, it is well for us to consider what is best to be done for the colonies that are wintering under this white sheet in the apiary. Is it necessary to remove the snow from the hives, or should it be left for a protection?

That this snow is a protection to our fields and our meadows all our farmers well know. It is a non-conductor of heat or cold, and the ground under it retains its natural warmth. When the snow melts, the wheat and grass show, by their green blades, that this mantle has been beneficial. The hives, likewise, if partly or entirely buried in the mound of snow, will retain the warmth of the bees, and many of our old apiarists purposely pile up the snow over their hives.

In Canada, in Siberia, bees live well through the winter and come out strong and healthy if a sufficient shelter of snow has protected them. The conditions, in those countries are, however, somewhat different from what they are at our latitude. The sun there has but little strength during the winter months, and when the hives are entirely buried their natural heat alone has any effect upon the snow. It causes it to melt away from the wood slowly but by a steady action, and the openings of the hive are thus liberated, and ventilation secured.

In our latitude of central Illinois there are but very few days when the sun does not more or less cause a thaw, the snow changes to ice, and an additional freeze-up by a sudden change of wind may completely close up the entrance and air passages. This condition would lead to the suffocation of the bees so confined if protracted beyond a few days unless some aperture or crevice at the upper part can give a chance for the ingress of pure air. So there is a danger against which we must guard and a little snow, enough to close the air-holes with ice is much more dangerous than a drift in which the hive is encoined as in a cellar.

That a few degrees in latitude make a great difference as to the results for the protection to be derived from the snow, is not to be doubted. I have had occasion to visit northern New York and a part of the Province of Ontario in the winter, and I have noticed with what faith in the thin coat of snow the vehicles of all kinds embark into trips on sleds. Every-

thing is on sleds from the omnibus to the dray cart, and it looks as if they might be tempted to put the electric cars on runners as well. Hereabout, if we venture ten miles from home in a sleigh we run great risks of having to come home in a skiff.

So the snow is not to be trusted too far, and the south side of our hives is in danger of being quickly uncovered of its shelter when it is of this flimsy material. Acting upon this experience we have been in the habit of banking up the snow, when there is plenty of it, on the north and west sides only, and carefully cleansing the apron-board on the first warm day after the snowfall. If the weather gets mild enough for a bee-flight, our bees then find themselves dry footed in front of their hive.

We have seen many bee-keepers close their hives on a warm day in snow time to keep the bees from flying and getting lost on the trip. We have never found any benefit in this method. When the weather is warm enough for the bees to fly, if they are confined they will fret and worry, and if their abdomen is loaded with fecal matter or excrements they may be compelled to discharge these excrements in the hive to the discomfort of themselves and their sisters. Better let them fly, and run the risk of their not returning. Not only is this reasonably plausible in theory, but practice has confirmed our view of the matter, for we have invariably noticed that those colonies which take the freest flight on warm days, and consequently seem to lose the greatest number of bees on the snow, prove to be the best colonies in the spring.

All things considered a heavy snow is to be taken as more beneficial than injurious to the interests of the apiarist, for if it is a sign of protracted cold—which is by no means always the case—it is also a prophet of prosperity since it shelters the land and promises us a healthy growth of grass, clover and other plants, and adds moisture in the ground, which slowly penetrates to the roots of the plants.

Hancock Co., Ill., Jan. 27.



Bees Clustering Between Brood-Frames and Cushion—Feeding Bees in Winter.

BY EDWIN BEVINS.

I shall have to confess to my inability to see what there was in "Iowa's" first question (see page 39) that led Dr. Miller to infer that there was an open space between "Iowa's" brood-frames and his cushions, unless this inference can be accounted for on the ground of surprise that any bee-keeper should be surprised at feeding his bees clustered up against the cushions when the cushions rest on the frames, or having a Hill's device or some sticks between the frames and cushions. If "Iowa" were to come into my yard now he would find the bees in every hive, except a few colonies in two-story hives clustered up against the cushions. This gives me no surprise and no uneasiness. I know that there is plenty of honey in all the hives for present needs, and that the bees will get it when they need it. The bees cluster up against the cushions for the sake of the warmth which rises from the cluster and is arrested and held by the cushions.

If my bees were in a barn without any packing around the hives except a cushion in an empty super over the frames, I might feel some of "Iowa's" apprehension that they might not winter safely.

It seems that "Iowa" has yet to learn that a building of any kind where the temperature varies much is about the worst place in the world to winter bees in. If I had some bees in a barn, as "Iowa" says he has, I should lose no time in getting them out of the barn and into a winter-case such as I now make for all of my bees. These cases are cheap, and I have found a way to make them so that it does not take the apple-orchard and calf-pasture to store them in when not in use.

If "Iowa" or anybody has bees that are getting short of stores, no time should be lost in making some cakes of candy from granulated sugar as recommended by Mr. Abbott. And here let me say that in time it will come to be recognized that Mr. Abbott has given us a cheap, easy and sure method of saving a colony of bees that happens to be starving in cold weather. I may be pardoned, perhaps, if I enlarge a little on what he says about making the candy:

If I want but one cake to help out a colony that has nearly enough honey to carry it through, I put a pint of water into a kettle that has a rounding bottom with short legs to keep it from tipping. When placed on the stove the center of the bottom of the kettle just touches the top of the stove. I remove a stove-cover at first and set the kettle next to the

fire till the water boils, then I pour in five pounds of granulated sugar and stir constantly while pouring it in.

Then if the fire gets quite hot, and the syrup begins to foam up, I raise the kettle and put the stove-cover under it. The boiling will continue in the center of the kettle, and there is no danger of burning unless your wife or your daughter, or your hired girl, comes around and builds up a big fire to bake some bread or heat the flat-irons. In that case you may have to move your kettle to some other part of the stove. If the bee-keeper happens to be unmarried, he will remain undisturbed, as it is not likely that his sweetheart will be around on such occasions.

Keep stirring while this slow boiling is going on till the water is nearly evaporated. You can tell when this takes place by the manner of the bubbling which is going on in the kettle. If the bubbles are few, and the bubbling labored, you may know that the job is nearly completed. Put a spoonful or so of the bubbling mass into a cup of cold water and you can tell for sure.

Pour the mass out into a common-sized, oblong baking-tin, and you will find the tin is just even full. When sufficiently cool, place the cake over the cluster, bottom side up, with two or three sticks half-inch thick under it. You may have to take a little of the stuffing out of the cushion, and then it will tuck down nicely over and around the candy. My sacks for cushions are made somewhat longer than the supers and left open at one end, so that it is an easy matter to remove part of the chaff.

Decatur Co., Iowa.

CONVENTION PROCEEDINGS

Report of the Northwestern Bee-Keepers' Convention, Held in Chicago, Nov. 10 and 11, 1897.

REPORTED BY A SPECIAL BEE JOURNAL-REPORTER.

(Continued from page 74.)

FIRST DAY—EVENING SESSION.

GRANULATION OF HONEY IN WOOD, TIN OR GLASS.

"Will honey granulate sooner in a wooden or tin pail than in glass?"

Pres. Miller—Who knows anything about that? I will venture a suggestion, that it ought not to granulate quite so soon in wood or tin, because it is generally supposed that light has a little to do with it; on that account, other things being equal, it ought to granulate just a little sooner in glass than in wood or tin, but I don't know anything about it.

Mr. Baxter—I don't believe that light has anything to do with the granulation of honey. I never found that out. I believe it depends upon the temperature altogether. The variation of temperature causes it to granulate much sooner than an equal temperature. That has been my experience. The way I can get honey to granulate the quickest is to take barrels and move them around often, and especially if they are down in the cellar. But if I take liquid honey and put a few grains of granulated honey into it, it will granulate very fast. I think it is owing to variations in temperature.

M. S. Miller—I ask that question, and the reason I ask it was, I have had it stand around in tin packages and glass, and while that in glass did not show any signs of granulation, in tin it did. There was another thing in my mind: The honey in tin packages had been more exposed to air, having been opened several times; perhaps that had something to do with it. I don't know what to think of it. It made quite a difference in selling honey to the city trade.

Pres. Miller—Was the honey put in at the same time?

M. S. Miller—It was, and the same kind of honey.

Pres. Miller—Was there any difference in the handling afterward? Was one shaken any more or handled any more than the other?

M. S. Miller—If it was, the one in tin was the most. I am not sure whether there was much difference. The cans were filled about the same time from the same honey.

Mr. Baxter—Mr. Christie, who used to attend these meetings from northwest Iowa, told me that he sells his Spanish-needle at retail by canning it, and sealing it up tight; it never

granulates then. The more exposed to air it is the more it will granulate.

Pres. Miller—To what point would you heat it?

Mr. Baxter—It wants to be so the air is thoroughly driven out.

Pres. Miller—If you go beyond 160° you are in danger, you know.

Mr. Baxter—By putting the cans in warm water there is no danger.

Pres. Miller—It hurt my honey; it may not dark honey.

Mr. Baxter—It won't white clover honey. Put it in hot water. I put my jars on a board in the bottom of a boiler, so the glass does not touch metal at all, and I have never had any trouble.

Mr. Green—Have you ever heated heart's-ease honey to that point?

Mr. Baxter—Yes, I have?

Mr. Wheeler—Some samples of heart's-ease honey we find granulating in a day or two after they are put in jars, especially if put in while warm, but I have a sample of honey which I had on exhibition at the World's Fair which was shipped down here in November, and after it was sent home it was shown at the Nebraska State Fair twice, and has not granulated yet. Those samples were treated differently. I took it off in the fall, carried it in a warm room in combs; it was extracted in April, and put into jars and shipped down here; it weighed 13 pounds to the gallon. I have had it show the effects of granulation while I was shipping it 100 miles. If honey is taken off and extracted and put into jars while yet warm from the hive, it will granulate much quicker than if it is kept on hand to ripen more.

Pres. Miller—I have no doubt that Mr. Wheeler has struck an important point; if we don't want honey to granulate it should be very ripe.

Dr. Besse—I have had some experience in keeping honey from granulating, and am satisfied that if you bring it almost to the boiling-point and put it in fruit-jars and can it up with sealing-wax, air-tight, you can keep it for years without granulating; and by adding a little cream of tartar with it—I want to ask whether or not that would be adulterating it.

Mr. Wheeler—How much to 60 pounds?

Dr. Besse—Well, to 100 pounds I should think about a tablespoonful.

Mr. Wheeler—What effect has that on the honey as to its color?

Dr. Besse—No effect at all. It will keep sugar from crystallizing, and I should think it would honey. I don't think there would be any harm in adding it.

Mr. Baxter—If the secret in keeping honey from granulating is to have it thoroughly ripened before extracting it, why is it that in California they extract it before it is ripe, and it never granulates?

Mr. Wheeler—It does not granulate in extremely dry air like California so quickly as it does here, because it does not gather moisture from the air.

Pres. Miller—All familiar with honey know that the character of the honey itself has a great deal to do with granulation.

Dr. Besse—I have some honey put up in one-half pound and pound jars, that has been put up for four or five years; some of it did not granulate at all, but the greater part did.

Mr. Wheeler—I think that point by Dr. Besse is a good one, about adding cream of tartar, if it works. I would like to find out what experience he has had; in what shape he adds it, and so on. I think there is a great demand by the people for honey that does not granulate, and if we can find something that will not be considered adulteration, I think that is one of the greatest helps to the sale of extracted honey there is.

Mr. York—I would like, as Mr. Wheeler asks, that Dr. Besse tell us a little more about what has been his experience in using cream of tartar to prevent granulation of extracted honey.

Dr. Besse—I have never used it, but I have been tempted to use it. I am against adulteration.

Mr. Green—Perhaps my experience with cream of tartar would be of some use. I used to use it for putting up sugar syrup for winter—a piece to 10 pounds of sugar. I think I used a piece of tartar about the size of a hazel-nut mixt with hot water, and added to hot syrup; boil a little after that, and it would never granulate or crystallize, and if used in honey in the same way it might have the same effect.

Dr. Besse—I am satisfied it will keep honey from granulating the same as sugar from crystallizing. I should like to have our friends here experiment on that. I don't think there would be anything wrong in it at all.

Mr. Wheeler—I have tried using it in sugar syrup, and it

didn't work at all. It granulated just as quick with it as without it.

Pres. Miller—H. D. Burrell reported that he used tartaric acid, and his syrup granulated solid in the combs.

Mr. Green—I should suppose the reason of that would be, it was not boiled after the tartaric acid was added; it must be boiled slowly afterward.

Mr. Wheeler—Mine was boiled at the time I put it in.

Pres. Miller—I don't believe you can settle "why;" you will find it sometimes will and sometimes won't.

Mr. York—I read in one of the monthly bee-papers, about a year ago, that to prevent the granulation of extracted honey if $\frac{1}{2}$ water were added it would do it. It was written by one who ought to know what he was talking about.

Mr. Green—I should think that would make some honey granulate more readily.

Mr. Wheeler—I am pretty sure it would sour it.

(Continued next week.)



Report of the California State Convention.

BY JOHN H. MARTIN.

The California State Bee-Keepers' Association held its annual meeting in Los Angeles Jan. 10. The meeting was called to order by Pres. A. J. Cook at 2 p.m. There was no set program, and a committee was appointed to prepare one—composed of C. A. Hatch, J. F. McIntyre and H. E. Wilder. While the committee were out, Prof. Cook gave a short review of topics that should be discussed by the association: 1st, The old vs. the new Union. 2nd, Adulteration. 3rd, The Bee-Keepers' Exchange.

Mr. W. L. Porter, a prominent bee-keeper of Colorado, and Mr. Thos. Wm. Cowan, editor of the British Bee Journal, England, were present, and were introduced, also elected honorary members.

The report of the committee on program was presented, and the first topic considered was

THE TWO BEE-KEEPERS' UNIONS.

Mr. McIntyre was in favor of the amalgamation of the two Unions. The National Union had been a great success in defending bee-keepers against prosecution by fruit-men and others who considered bees a nuisance; but it was not disposed to prosecute the adulterators of honey. The United States Union proposes to take this very important matter in hand, and he was decidedly in favor of uniting the two.

The tendency of the discussion was in the same strain. Several who had heretofore been opposed to the amalgamation of the two were now in favor of it. Mr. C. A. Hatch presented the following resolution:

"Resolved, That the new United States Union should absorb the National Union."

Upon putting the resolution to vote, 43 favored it, with none opposing.

Upon a motion by R. Touchton, the Secretary was instructed to inform the respective managers of the two Unions of this action.

The next subject for discussion was

THE ADULTERATION OF HONEY.

Mr. Hatch said that the adulteration of honey was practically stopt in Wisconsin by the enactment of stringent laws and the enforcement of them.

C. H. Clayton, author of the present law in this State against adulteration, said that the proper enforcement of the law in this State would have the same effect; but as the greatest amount of adulteration was practiced in the East, a general pure food law should be enacted under which we could work more effectively.

BEE-KEEPING IN ENGLAND.

This topic was on the program, and the announcement meant that Mr. Thos. Wm. Cowan would give the assembled bee-keepers something interesting upon that subject, and they were not disappointed. We wish that we could give a more perfect report of the address, but we trust that the report we do give will repay perusal. Mr. Cowan, in substance, said:

That while in California large apiaries are common and encouraged, in England there are but few large apiaries, and large apiaries are not encouraged; the small apiary is the rule in England, and many of the apiaries are kept in fruit-growing districts for the purpose of fertilizing the fruit-blossoms.

Bee-keeping, according to improved methods, began about 1860. The Langstroth-hive was introduced at that time, and was used by the most progressive bee-keepers, but the

real advance did not become general with bee-keepers until 1873. Up to this time many straw and other rude hives were used, but now the Langstroth hive is gradually superseding all others. In 1874 the British Bee Journal was started and an association organized; something of an impetus was also given to the industry through the exhibits of honey in the Crystal Palace in London.

In organizing the British Bee-Keepers' Association it was difficult to get bee-keepers to attend. The Association is now made up from affiliated societies. The various county societies are obliged to elect two delegates to represent them in the council, which meets every month. Often the delegation from a county society will number eight or ten, and a large attendance at the council is the result. Refreshments are served, and then follow papers and discussions upon topics of interest to the various societies.

Through its thorough organization the British Bee-Keepers' Association is doing excellent educational work, several books upon the different branches of apiculture having been published. The Association grants certificates to the most proficient in the manipulation of not only frame hives but straw hives as well, and in the management of foul brood and other diseases. When an examination of candidates for certificates is to be held, several counties unite and select a place where bees can be manipulated. After the candidate is examined, the examination papers are sent to London and past upon by the council. In order to secure a certificate the candidate must be able to give a lecture upon any subject in the practice of bee-keeping.

Experts for the handling of foul brood are appointed and compensated according to the work done. The expert does not visit keepers who are well up in their business, but it is the careless or ignorant bee-keeper whose bees are found diseased. In many districts in England the bees have all died from this disease. It was virulent because many bee-keepers had no knowledge of the interior of a bee-hive; straw hives, or something equally inaccessible, were in use; such bee-keepers would defy the expert, for there was no law to compel the destruction of diseased bees. The Association had adopted a system of payments where foul-broody colonies were to be destroyed, and tho the payments were small it satisfied the owner of the bees, and enabled him to purchase healthy colonies if his own were all destroyed.

The honey market is developed by the holding of honey-shows in the various counties, and a central show in London. A system of labels has been adopted. These labels are issued by the county association. Each member is allotted a number which is stamped upon his label; if he sells inferior honey it is traced to him, and his name is stricken from the Association.

The Association employs an analyzer, and if a person is caught adulterating honey or selling it under an Association label he is imprisoned; they are not left off so easily in England as they are in this country.

There are about 53,000 bee-keepers in the British Isles. They will average five colonies each: in favorable localities the yield is from 100 to 150 pounds per colony, but the general yield is from 50 to 60 pounds.

The bulk of the product is extracted honey, and is put up in 50-pound, 28-pound, and in as small as 4-pound tins; packages smaller than that are of glass.

The wholesale price for comb honey is from 14 to 20 cents; extracted honey 12 cents. The value of the annual product is about \$750,000. Besides the home production there is a monthly import of from 10,000 to 15,000 pounds, the greater portion of it from the United States and Canada.

Imported honey is not inspected until it is put upon the market. American honey was held in good repute until in 1879; in that year Mr. Hoge, who represented Thurber & Co., of New York, sold a large amount of adulterated honey, and American honey has not regained the prestige then lost.

The sources of honey in England are white clover, sainfoin, lin, buckwheat, and the heather honey of Scotland. Heather honey is darker even than buckwheat, but it sells for a better price on account of its delicious flavor; it is usually sold for 60 cents per section. It is so thick that it cannot be extracted. To secure it in the liquid form the comb must be submitted to pressure; this honey sells for 36 cents per pound. The best imported honey comes from America and the Sandwich Islands. Granulated honey sells readily, and the bee-keepers' association is educating people to use it in that form.

The bee-keeper and the fruit-grower are in accord; the fruit-men recognize the utility of the bee in the fertilization of blossoms, and seeks to have the bees near his orchards.

An orchardist in Gloucester planted 200 acres of fruit; the orchard was a complete failure in fruit-bearing until a Scotch bee-keeper put in 50 colonies of bees. When properly fertilized by the bees the orchard began to bear. The acreage

was then extended to 500 acres, and the apiary was increased to 200 colonies; the orchard now produces a large amount of fruit, a large jam factory is operated on the tract, and all of this prosperity is owing to the beneficial intervention of the honey-bee. Several instances of a similar nature might be cited. The honey-bee is certainly a great factor for the production of perfect fruit.

The following committee was appointed to draw up a memorial to Congress in reference to the passage of a general pure food law: N. Levering, R. Touchton and J. H. Martin.

DEEP-CELL FOUNDATION.

This foundation has not been tried to any extent yet, and it is still problematical if it ever becomes a commercial success. Several bee-keepers had noted that bees would not work deep-cell foundation as readily as they will foundation. The new Weed process foundation was considered by those who had given it an impartial trial as superior to all other foundation.

The election of officers was next in order, and with the following result:

C. A. Hatch, President; Elon Hart, Vice-President for Los Angeles county; Delos Wood, for Santa Barbara; M. H. Mendleson, for Ventura; Dr. E. Gallup, for Orange; F. G. Reynolds, for San Diego; H. E. Wilder, for Riverside; and J. C. Kubias, for San Bernardino. J. F. McIntyre, Secretary; J. H. Martin, Treasurer. G. S. Stubblefield and R. Touchton, executive committee.

EVENING SESSION.

The evening session was opened by Mr. Geo. W. Brodbeck upon

THE BEST SECTION FOR COMB HONEY.

He exhibited honey in the new no-bee-way section, and pointed out the advantages of the same, viz: that the section appeared better filled, and that more of them could be packed in a case. The disadvantages were that the combs were too near in contact with each other when packed in a case, giving inducement for miller-worms to work; and if the face of the comb was not perfectly even there was liable to be abrasion and leakage. From a side view the section appeared to be light weight.

M. H. Mendleson had used the Danzenbaker or tall section, and had excellent success in producing a first-class honey and selling a portion of it for a good price. He proposed to use them exclusively in the future.

Under the head of the keeping qualities of comb honey Mr. C. S. Stubblefield said that he had kept white sage honey for three years without detriment to the honey.

NATURAL VS. ARTIFICIAL SWARMING AND THE METHOD OF INCREASE

was the next subject for consideration. Mr. Mendleson said that if his bees swarmed freely he let them swarm, but if they did not then he resorted to division.

Mr. McIntyre desired to prevent swarming, but if he wished to increase he usually let the colony swarm, then removed the hive from which they issued, and made as many nuclei as there were good queen-cells. The swarm that had issued was returned to the old location, and put into a hive filled with foundation as soon as the queens were laying in the nuclei, or even before the nuclei could be built up with brood from other colonies that had swarmed. In this method good queens were secured and a rapid increase made. Ten from one could be easily made.

J. K. Williamson said that he could make 25 colonies from one by the nucleus plan, and have them all strong enough to winter; it however required a long season. He usually made his increase on a diminishing honey-flow.

MOVING BEES.

In the process of moving bees Mr. Mendleson used a wagon upon which he could carry 200 colonies, but for long-distance moving it made the load too top heavy, and he usually put on only 150. The springs on his wagon would bear a burden of six tons.

Mr. Brodbeck preferred to move bees in lighter loads and travel faster. He desired to so move his bees as to prevent night travel as much as possible.

SECOND DAY—MORNING SESSION.

FOUL BROOD.

Mr. Mendleson, foul brood inspector for Ventura county, said that the sure-cure remedy was the total destruction of the colony. He had burned a large number of colonies and their hives. There is no chance for an annihilated colony to spread the disease.

Mr. Brautigam had found that foul brood was especially virulent in Napa county, with not much effort to eradicate it.

H. E. Wilder, inspector for Riverside county, said that one cause for the spread of foul brood is in the apathy of bee-keepers. The State law will not allow inspection unless a complaint is made, and bee-keepers are careless about making complaints.

Mr. Cowan said that in England in many districts the bees had all died from the disease. It was virulent because many bee-keepers had no knowledge of the interior of the bee-hive. There were bees in churches and other inaccessible places which were liable to spread the disease. The church bees were being removed, and in this thorough way of treating it the disease was much better under control than formerly. Mr. Cowan believed in destroying the hive and the frames, for a germ of the disease would live in a crevice of a hive for several years, and if at any time it became exposed the colony was sure to become inoculated.

Mr. Mendleson favored a law to prevent the moving of a foul-broody apiary into a location where there was no foul brood. A person in moving bees should be compelled to secure a certificate from the foul-brood inspector, guaranteeing his bees to be in good condition.

It was demonstrated that the disease could be cured if it was handled in a thorough and systematic manner. Mr. Touchton said that the cure should be in the hands of an experienced person, for a remedy in the hands of such a person was all right, but in the hands of a novice it was many times worse than useless. The washes that were recommended were salsoda and lye; the latter would take off paint, and ought to penetrate the most obscure crevices of the hive.

THE BEST BEE-HIVE.

Mr. Brautigam said that the manipulation of bees for the highest profit depended more upon the man than the hive.

Mr. McIntyre used a 10-frame hive, but had recently introduced into his apiary 60 12-frame hives, and prefers them to the 10-frame hives. He thinks that this hive three stories in height will have a tendency to give the queen the highest capacity for brood-rearing, and for the prevention of swarming.

Mr. Hatch said that he had kept bees in Wisconsin, Arizona and California, and had found that if the bee-keeper wants a bucketful of honey he must have a large hive.

Mr. Martin said that he uses the Heddon hive. The regular Heddon hive is made to take eight frames, but he uses ten frames, and finds that by adding stories as the season advances the hive can be enlarged to any desirable size.

HONEY-CANS—SUPER-HOLDER.

Honey-can manufacturers were in evidence with their wares. A Mr. Boyle exhibited tin cans lacquered in imitation of brass. The cans presented a very neat appearance, and in being so treated they did not have the appearance of coal-oil cans.

Some of the bee-keepers advocated that our honey should be put up in 50-pound cans, and two in a case. The present cases, weighing about 135 pounds, are too unwieldy to handle. There was also an inquiry for 10-pound cans.

Mr. Heath exhibited an apparatus for removing the super from a hive and holding it in an elevated position while the queen-excluder or an empty super was being adjusted under it.

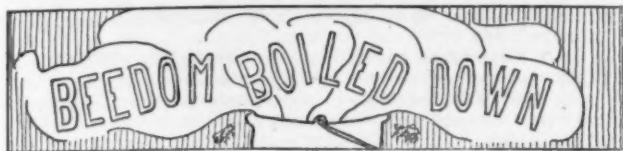
After a very pleasant and profitable session in a social way the Association adjourned.

JOHN H. MARTIN, Sec.

Complete Volumes of 1897.—We have on hand about 40 complete volumes of the American Bee Journal for 1897, which we will mail to any one upon receipt of 60 cents. We also have about the same number of the first six months' copies of 1897, which we will mail for 30 cents. As there were 832 pages of the Bee Journal last year, here is a chance for our new subscribers to get a good deal of valuable reading-matter for a very little money. Better order at once, before they are all gone.

Langstroth on the Honey-Bee, revised by The Dadants, is a standard, reliable and thoroughly complete work on bee-culture. It contains 520 pages, and is bound elegantly. Every reader of the American Bee Journal should have a copy of this book, as it answers hundreds of questions that arise about bees. We mail it for \$1.25, or club it with the Bee Journal for a year—both together for only \$2.00.

See "Bee-Keeper's Guide" offer on page 43.



Finding Queens in Bee-Houses is made easier, according to a writer in Magyar Meh, by having a looking-glass arranged on a pivot so as to throw the light of the sun where desired.

Dark and Light Honey for Winter.—The dark, strong honey of inferior quality that his bees gather in the fall, says Ed Jolley in American Bee-Keeper, is bad for wintering bees in the cellar, but excellent for wintering out-doors, while clover or light honey is excellent for cellar but poor for out-doors. The reason he gives is that the fall honey is strong and aromatic, "and very conducive of heat."

Foul Brood.—In November, shake one or more colonies of diseased bees on about five combs of solid sealed honey. That's all. Even if some diseased honey is carried away with the bees, if there are no empty cells in which to store it, it will be used up long before any brood is present. But be sure there is no infection in the sealed honey or in the hive. So says F. Alexis Gimmelario, in Canadian Bee Journal.

Do Bees Injure Grapes?—Prof. Troop, of the Indiana Experiment Station, has been investigating this question afresh. From a Worden grapevine with ripe grapes, all defective berries were removed and a colony of bees enclosed with the vine under mosquito netting, allowing the bees 300 cubic feet of room. The bees soon got used to the confinement, and after three weeks not a single grape had been injured.

A Good Plan.—D. W. Heise, the man who does some browsing around among other journals for the Canadian Bee Journal, while speaking a kind word for the "Question and Answer" department of this journal, mentions a practice of his that might be followed with profit by those of less experience than Mr. Heise. He reads the question, then settles an answer in his own mind before reading Dr. Miller's answer. In this way a more lasting impression is made.

Density of Honey.—From the unfinished report of the convention of the Ontario bee-keepers, in Canadian Bee Journal, it appears there is more or less unripe honey put on the market in that country, samples analyzed at Ottawa showing a range of from 12 to 33 per cent. of water. Agitation for a law is suggested, making the honey fall under adulterated if more than 25 per cent. of water be found present. Prof. Shutt thought 48 to 20 per cent. of water was not far from the average.

The Ontario Bee-Keepers' Convention.—D. W. Heise says in Canadian Bee Journal that the convention at Hamilton past off with a harmony that must have been bewildering to those accustomed to the stormy scenes of previous years. The editor, however, says that at the last end, when a large proportion had left (probably D. W. among them), they had a repetition of the worst scenes of former years. Which goes to show what an unwise thing it was for Mr. Heise to leave "before meetin' was out."

Temporary Asphyxiation of Bees.—This is recommended by Le Rucher Belge when for any reason drumming cannot be used to dislodge bees, as in the fall when it is so cool that bees remain stubbornly on their combs in spite of the drumming. Take a wet cloth the size of the hand, sprinkle over it a quarter of an ounce of powdered saltpeter, then roll it up into a cigar shape. It must be prepared in advance, so as to be thoroughly dried. Dig in the ground a hole 6 inches deep, and a little smaller than the mouth of the hive. Cover a good-sized cloth over the hole. Give the bees a little smoke, just to keep them in the hive, and set the hive over the cloth. Pile earth around it so as to make all tight, then light the saltpeter cigar, put it in a smoker, and with the nozzle of the smoker in the flight-hole blow in the sharp smoke. In a few seconds the rag will be burnt up, when the flight hole is to be plugged up. Then comes an intense roaring, a cry of agony that gradually becomes feebler, then the silence of death. With watch in hand wait exactly four minutes, in the mean-

time giving the hive some sharp blows to dislodge any bees that have not fallen. Raise the hive and give the bees fresh air. When the bees begin to stir let them enter the desired hive. In half an hour they will be ready to take flight. Operate toward evening. Two or more colonies thus treated may be united without any precaution.

Honey for Winter Stores.—The quality of the honey which the bees consume has also a great influence over their health. A good grade of honey, light in color and free from ferment, or of floating grains of pollen, which are often found in dark honey, furnishes an article of diet which leaves but little residue after digestion, and their bowels are therefore not overloaded by their dejections, as is the case if their provisions are composed of dark or unripe honey; or worse yet, of honey-dew, of the juice of fruits such as apples, grapes or peaches, which is sure to work and ferment, and sours in the cells long before the cold weather compels the bees to remain in the hive.—C. P. Dadant, in Busy Bee.

Experiences in Bee-Keeping.—Bee-keepers' autobiographies seem to be somewhat the order of the day. Gallup in American Bee Journal, Alkin in Progressive Bee-Keeper, and now A. E. Manum starts in to give his 27 years' experience in Gleanings, giving a sort of promise that at the close one will be able to answer the question whether it is "safe for a man with a family to depend upon bee-keeping alone for the support of his family." His bee-fever was contracted through the reading of Quinby's book, which a neighbor forced upon him, and he was soon the possessor of two colonies in box-hives. The first number of his story is mainly taken up with telling what his neighbors didn't know about bees, and closes like most continued stories with the reader's interest all alert, for he promises to tell in the next about his first crop of honey, which netted him 33½ cents a pound in Boston.

Bees as Weather Prophets.—An article on this topic published in Cosmos was thought worthy to be translated for The Literary Digest, and has been copied by the British Bee Journal. The writer says he noticed 40 years ago in old straw hives with two entrances, that about the beginning of October the bees stooped up these two entrances with wax, so as to leave passage for only one bee at a time. He also says that bee-keepers of all countries agree in saying that every time the bees have taken care to seal hermetically the entrances to the hive, so as to leave but a minute passage for air, the winter has been of extreme rigor, while in years when the bees have done nothing to preserve themselves from the cold, the winters have been relatively mild, with no heavy frosts. Just how the bees can tell so surely beforehand the severity of the coming winter, he considers too hard a problem to solve. If this Boiler were not afraid of getting into hot water, he would tentatively suggest that one solution of the problem might be given by saying that the whole affair has no foundation in fact, and that intelligent bee-keepers don't believe the amount of propolis at the entrance has any direct relation to the severity of the coming winter.

Cross-Breeding of Bees.—In Progressive Bee-Keeper Dr. C. C. Miller, taking a hint from a German writer, figures out what the stock will be if one starts with a black drone and an Italian virgin queen, breeding continuously from the same stock. One might guess that the result would be half-bloods, but a little figuring shows differently. As is well known, the first generation after making this cross a drone will have 100 per cent. of Italian blood and a young queen 50 per cent. Putting the matter in tabulated form, and following it for ten generations, gives the following:

	DRONE.	QUEEN.
1st Generation	1.00	.50
2nd "	.50	.75
3rd "	.75	.625
4th "	.625	.6875
5th "	.6875	.65625
6th "	.65625	.671875
7th "	.671875	.6640625
8th "	.6640625	.66796875
9th "	.66796875	.666015625
10th "	.666015625	.6669921875

The figures are followed up to the 18th generation with no material difference, only that the numbers in the two columns constantly approximate. That is, if you start with a pure sire and a pure dam, by the time you reach the sixth generation you will have settled that your stock will be two-thirds the blood possessed by the dam.

The American Bee Journal
 OLDEST BEE-PAPER IN AMERICA

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United States Bee-Keepers' Union.

Organized to advance the pursuit of Apiculture; to promote the interests of bee-keepers; to protect its members; to prevent the adulteration of honey; and to prosecute the dishonest honey-commission men.

MEMBERSHIP FEE—\$1.00 PER ANNUM.

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EUGENE SECOR, Forest City, Iowa.

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Chicago Food and Health Exposition.

As a good many know, such a show embraces the exhibition of various kinds of table food, free samples or "tastes" of which are given to thousands of visitors who call to inspect them. This particular Exposition was under the management of the Chicago Journal, one of the daily newspapers here, with a gentleman by the name of A. E. Miller in charge. It was held during the month of October, 1897.

Battery D, on the Lake Front, was the place which was divided into compartments or booths, and the illustration on the first page this week shows the booth we put up to exhibit pure honey. It was in charge of Mrs. W. H. Harris, an estimable Chicago lady, whose likeness is shown in the picture, tho the flash-light with which the original photograph was taken seemed to pretty effectually close her eyes, and give her the appearance of being somewhat sleepy, but that is far from her real disposition.

Perhaps right here we may as well let our friend "Emm Dee" give his impression of the show, after having made a careful inspection:

THE FOOD SHOW.

The exhibition, in Chicago, of thousands of varieties of health-giving foods has been of greater practical interest this year than ever before since its organization. Indeed, the recognized importance of this exhibit has become so fully appreciated by the increasing attendance that it has not only been extended a week longer than the allotted time, but a strong influence is being exerted to hereafter make it one of

the great features of an annual industrial exhibition, such as proved so attractive some years ago.

It is impossible to enumerate all the descriptions and qualities of food and other useful articles exhibited at this exposition. Many were of great interest as encouraging, in an inviting manner, the substitution of foods long in use for more healthy and palatable ones. Conspicuous among the gaily-adorned booths was York's honey display, of both comb and extracted honey, presided over by a lady of gentle manners and persuasive charm—Mrs. Harris. Many will know of and appreciate the great value of honey as a food since chatting with the fair saleslady. Editor York is evidently very alive to the interests of the bee-keepers. EMM DEE.

The following paragraph appeared in a local suburban paper, called The Lake Breeze, and published where we reside:

"Those who have been so fortunate as to visit the Pure Food Show at Battery D, will not soon forget the honey-booth, and surely will never forget the honey itself. As the proprietor of the honey-booth, George W. York, is a Ravenswood man, it is not strange that Ravenswood has been well represented at the show, and Mr. York and his honey have made many friends there. Mrs. Harris, who has presided over the booth during the show, is also from this suburb, and her friends have not failed to sample the excellent bee-product kept in stock."

Now we might write several pages on our experiment along the line of an attempt to educate the public by wholesale as to the value of pure honey as a daily food. But we can only say here that thousands of people at least for once in their lives knew what it was to taste *pure* extracted bee's honey—a thing to which Chicago people have been almost strangers. We also gave away great numbers of the "Honey as Food" pamphlet, which must result in untold good, provided those who took copies of it will read its truthful contents.

We feel that we did at least something for the future of honey in this city, by our month's exhibit at the Chicago Food and Health Exposition. It was a pretty big undertaking, and financially we can hardly say that it proved a success for us; still, "York's Pure Bees' Honey" became quite well known, and for awhile in Chicago many grocers "caught on" to its popularity, and kept it for sale. Since then country bee-keepers have come in and cut the prices, and the glucose-mixers have also gotten in their criminal work, so that it is quite difficult to try to do even a fairly profitable business in pure honey here. What is needed is a vigorous enforcement of our Illinois anti-adulteration law, and then following up of every grocer with pure honey, both extracted and in the comb.

While our honey exhibit was practically a financial failure to us, yet we believe for the bee-keepers who ship their honey to this market it will eventually prove a good thing, because of the advertisement pure honey received, thus creating a greater desire on the part of consumers for the genuine bee-product.

Call for a Pure Food Congress.

A call for a Pure Food and Drug Congress has been issued, signed by Alex. J. Wedderburn, as Secretary, who is also the special chemist of the Department of Agriculture. It is proposed to hold it March 2, in Washington, D. C. Here is the "call" as printed:

The question of the character of the food, drink and drugs consumed by a people is unquestionably one of the most important that can be discussed by them. Adulteration, misbranding, sophistication, substitution, and imitation undoubtedly exist to an alarming extent, to the detriment of health, legitimate business, and sound morals, and it becomes needful to secure legislation that will check this growing evil and permit an honest man to do an honest business.

The extent of adulteration can only be estimated by the number of industries engaged in producing food, drugs and liquors, for no sooner does a legitimate business succeed than illegitimate imitators follow in its wake. These unfair practices have become so general that remedial legislation is demanded to protect the health, morals, and business interests of the people. Our foreign trade is threatened, and unless

checkt every honest man will, ere long, be compelled to quit business.

Many of the States have good laws which cannot be enforced, owing to the "Original Package" decision of the Supreme Courts, which prevents the several States from effectually controlling this matter—hence, it becomes necessary to enact a Federal Statute to prevent the Inter-State Traffic in such commodities. House Bill No. 5441, introduced by Hon. Marriot Brosius, of Pennsylvania, is now soon to be considered by the Committee of the House.

As there are divergent views as to some minor points of this measure, which should be reconciled by a consultation of the interested parties, and believing that it is the desire of the great mass of manufacturers, producers and consumers to reconcile all such differences to unite in urging the adoption of a Pure Food Law by Congress, so as to sustain the good name of the Nation, and preserve the health and integrity of our people, therefore, the undersigned hereby call a Pure Food and Drug Congress, to assemble in the city of Washington, D. C., at the National Hotel, at 12 o'clock, m., on Wednesday, March 2, 1898.

Arrangements have been made for reduced railroad transportation and hotel rates, the latter being fixt at \$2.00 to \$2.50 a day.

Address all communications to the Secretary, A. J. Wedderburn, Headquarters Food and Drug Congress, Parlor 11, National Hotel, Washington, D. C.

By order of the committee.

FRANK HUME,
MATTHEW TRIMBLE,
WM. C. WOODWARD,
R. N. HARPER,

J. D. HIRD,
BERIAH WILKINS,
ALEX. J. WEDDERBURN,
Secretary.

Washington, D. C., Jan. 18, 1898.

An appointment of delegates is made in connection with the foregoing call, which embraces, as far as possible, every interest involved in the production, manufacture and sale of food, drug and liquor products—in proportion to the numbers engaged therein. It embraces scientists and health departments, as well as those who have charge of local laws in the various States and Territories.

Of course honey producers are greatly interested in this subject, and we may say that each State bee-keepers' association is authorized to appoint one delegate, and three each by the National and the United States Bee-Keepers' Unions.

As chairman of the Executive Committee, we expect by another week to be able to announce the names of those who will represent the United States Bee-Keepers' Union. We regard it as a very important occasion, and trust that the efforts of the proposed Congress may result in something of great value to the producers of pure food in this country. Just now we believe that there is no other subject that should so concern the bee-keepers of this land.



THE LEAHY MFG. Co. reported in a letter sent us Feb. 1, that they were running their factory day and night.

—MR. GEO. F. ROBBINS, of Sangamon Co., Ill., has gone to Uvalde Co., Tex., to keep bees. He reports that there are more bee-keepers down there than he ever thought there were anywhere in the same extent of territory.

MR. JAS. A. STONE, Secretary of the Illinois State Bee-Keepers' Association, will read a paper on "Bee-Keeping in Illinois," before the State Farmers' Institute, which meets at Champaign, Ill., the last week of this month.

THE A. I. ROOT Co., writing us Jan. 29, said that altho they had sent out five carloads of bee-supplies that week, they still had on hand orders for ten carloads more. About three or four carloads a week, with the small orders, is about the limit of their factory capacity.

WEDDING BELLS as well as sleigh bells have been ringing at "Rootville" this month, and at least two of the Root-villians are supremely happy. Miss Constance M. Root, daughter of Mr. A. I. Root, was married, Feb. 1, to Mr. A. L. Boyden, one of The A. I. Root Co.'s most faithful and trusted employes. Our heartiest congratulations are hereby extended to the happy pair.

We don't know whether there is any rule about it or not down there among the Roots, but if we remember rightly Mr. Calvert, the business manager, after being in the employ of Mr. Root for awhile, won the hand and heart of his eldest daughter; then, Ernest R. Root did the same thing with one of their charming lady employes—Miss Elizabeth Humphrey; and now Miss Constance captures (or more likely was captured by) Mr. Boyden. And so it goes. But so long as everybody is happy and contented, and each has the "best companion in the world," what more can be desired?

Our congratulations to the Root-Calvert-Root-Humphrey-Root-Boyden-and-A.-I.-Root combination of Roots and Root-lets.

DR. MILLER, in McHenry Co., Ill., writing us Jan. 26, said:

"What a blizzard it was yesterday. We're snowed in. Made no attempt to get farther than the barn yesterday, and we seem quite lost to go a day without the mail. Oh, for free rural delivery! After I get this letter in the envelope, I'll take the cutter and a shovel and see what I can do toward getting to town. At the back door the snow is five to six feet deep."

"LATER.—Feb. 2—9° below zero yesterday; snow 18 inches on a level, but not much of it left level—piled up in drifts and drifting all the time; 9° higher to-day, but as I'm writing without coat or vest, I've no reason to complain."

MR. JOHN A. PEASE, in the Pacific Bee Journal, tries to come a rather bright trick on us by training our own battery on us, by asking us to use the same argument for encouraging the making of new bee-keepers that we used for publishers of new bee-papers. But we fail to see wherein the two can be compared. Good deal of difference in a bee-keeper and a bee-paper. When a new bee-keeper stops he generally loses only his own money; but a short-lived bee-paper usually loses some money for its subscribers, also, and almost invariably proves of no benefit to its publishers or the public. But Mr. Pease writes very well.

DR. P. C. GRESS, of Atchison Co., Kan., met with a heavy loss by fire Jan. 27. There were destroyed 153 colonies of bees, numerous empty hives, 5,000 pounds of honey in cases ready for market, 100 pounds of beeswax—in fact, everything connected with his well-appointed apiary. The total loss was estimated to have been about \$3,500, partly covered by insurance. Dr. Gress had been working 12 years to build up his apiary, and had one of the finest in the State.

REV. E. W. PFAFFENBERGER is the editor of the Western Christian Union, published at Boonville, Mo. He has been reading the Bee Journal lately, and in a letter dated Dec. 6, wrote us:

"I am much pleased with your style of editing the Bee Journal. The matter is well and tastefully arranged, and is always pure and wholesome reading.....Since becoming acquainted with the Bee Journal we have been eating a good deal of honey at our house."

MR. JOHN H. MARTIN, of Los Angeles Co., Calif., reported Jan. 31, as follows:

"We are having a continuation of dry weather, and the prospects of a honey-yield for the coming season are getting very discouraging. We must have rain, and soon, in order to revive the hopes of the bee-keepers."

MR. A. F. BROWN, of St. Johns Co., Fla., wrote us Jan. 28:

"Another disastrous freeze has visited our State this winter—Jan. 2 and 3—and as a consequence thousands of orange-growers feel extremely 'blue,' myself among them, as my groves are cut back badly."

MR. J. Q. SMITH, of Logan Co., Ill., President of the Illinois State Bee-Keepers' Association, wrote us Jan. 29:

"My bees are wintering nicely on the summer stands packed in leaves."

QUESTIONS AND ANSWERS

CONDUCTED BY

DR. C. C. MILLER, MARENGO, ILL.

[Questions may be mailed to the Bee Journal, or to Dr. Miller direct.]

Moving Bees into a Bee-House.

I want to move my entire stock of bees into a bee-house. When will be the best time to do it? INDIANA.

ANSWER.—Any time now will do, as they have now been so long in winter quarters that they will be likely to mark their location whenever they fly next. After moving them, try to make the old spot look as different as possible.

Question on a Bee-Repository.

I have read your answer to my question, on page 38, and notice what you say about the repository which I have put up after a plan given in the "A B C of Bee-Culture," page 327, where Mr. Root says that he and a neighboring bee-keeper used buildings constructed very much the same as mine, only I thought that I would make a sure thing of it, and where they had 8 inches of sawdust I had 15, and a two-inch air-space inside. The bees have wintered in them successfully. The way I understand, the loss was in putting them out too early in spring.

If these buildings were not put up the right way, please give a plan for a repository where we could winter bees successfully nowadays.

In my question on page 38, where it reads, "then another wall of four-inch boards," it should read—then another wall of four inches, with boards and paper on both sides.

WISCONSIN.

ANSWER.—I don't find what you refer to in "A B C of Bee-Culture," and probably have not the same edition. But I very much doubt that bees will winter successfully in such a building above ground unless there is some way to warm it up when it becomes too cold. If entrances were allowed, so the bees could fly out every time the weather permitted, the case might be different. I must say, however, that I have had no personal experience in the matter, and will gladly yield the floor to any one who has.

Boring a Well near a Bee-Cellar.

I would like to have a well bored close by the house, but I fear it might disturb the bees in the cellar. WISCONSIN.

ANSWER.—I think I'd go ahead whenever it suited best. I very much doubt whether it will make any difference to the bees.

Moving Bees by Railroad—Wintering in Cold Climate—Out-Apiaries.

1. I am thinking about sending a colony of bees on a chartered emigrant car to my son living in North Dakota. They are in an 8-frame dovetail hive. How can I best prepare them for the trip? I suppose I would send them about the last of March, or the first of April.

2. Would eight frames hold enough stores to winter a colony in that climate? It is said they would be confined to the hive in some seasons from Nov. 1 to Apr. 1 without a flight.

3. In such a climate could they be wintered out-doors, by proper packing? If so, how should they be packed?

4. I am getting a little interested in out-aparies, having about as many colonies as can be profitably kept in one yard, where neighbors have bees all around, but I have no experience in out-yards at all, and there is no one near me who has, whom I can consult. Can you not give us an article on it?

ENQUIRER.

ANSWERS.—1. As the frames in dovetailed hives are self-spacing, the only thing to do with them is to see that they are wedged up firmly at the side. Fasten the entrance with wire-cloth, secure the bottom to the hive, and cover the entire top

with wire-cloth, removing the cover. A good plan is to make a frame an inch or two deep just the size of the top of the hive; cover this frame with wire-cloth, and fasten securely to the hive. A good way to fasten the bottom on the hive is by means of what are called tobacco-staples, $1\frac{1}{4}$ or $1\frac{1}{2}$ inches wide, with legs about $\frac{3}{4}$ inch long. Set the hive in the car so the frames will run the same way as the rails of the railway. Don't set a cook-stove on top of the wire-cloth.

2. An 8-frame hive will hold all the honey needed. But it needs closer watching than a 10-frame hive, to make sure that enough honey is present at the beginning of winter.

3. Probably packing all sides but the front with some kind of packing at least two inches thick would answer. Better consult, if you can, those who have wintered successfully right on the spot.

4. If you have any thought of starting an out-apary, it will be worth while for you to consult Root's "A B C of Bee-Culture," where the whole subject is very fully treated, occupying about eight pages, and in Gleanings for 1889, commencing with Feb. 1, is a series of articles in which I gave very fully what I knew about out-aparies.

Starting with Bees—Wintering in Bee-House.

I started in with a glass hive in the house, to see the bees work, and two colonies in an orchard to help fertilize the fruit blossoms. We caught a stray swarm one Sunday afternoon, then, fool-like, divided the one in the house, also those in the orchard. It was a very poor season, only one day during basswood bloom, in which bees could fly. I found one colony, nearly starved, and gave them all the honey the others had stored. I got only three or four sections, and then had to buy 80 pounds to winter them on.

I now have seven colonies, all strong, and I think they have enough honey to carry them through the winter, if they are only economical with it, and they generally are, I believe. I built them a nice house, 8x16 feet, facing south, with place for two tiers of hives, eight in each story. They are packed nicely, the top of the hive being filled with straw. They have no ventilation. Do they need any? The face of the hive is exposed to the sun and weather. I find a good many dead bees in front of the hives, and on the snow where they have fallen while flying during sunny days. The openings are about $1\frac{1}{4}$ inches long by $\frac{1}{4}$ high.

NEW YORK.

ANSWER.—Your arrangement will probably work all right, only $1\frac{1}{4} \times \frac{1}{4}$ is too small an entrance for winter and very much too small for summer. Better wedge up each front corner $\frac{1}{4}$ inch. See that the dead bees don't clog the entrance. Take a heavy wire with one or two inches bent at right angles at the end, and clean them out. But don't be alarmed at finding a good many dead bees on the ground. Bees are dying off all the time, and make quite a show on the white snow. It is generally recommended, however, to scatter straw on the ground at such times as bees may come out to fly when the ground is covered with snow, covering it for a few feet around. When the air is too cold for the bees to fly, say at 40°, bees are tempted out sometimes by the very bright sun shining in the entrance, and at such times it may be well to put a board before the entrance to keep out the sun.

A Beginner's Questions.

Last spring I had three colonies of bees, but one of them died. I am a carpenter by trade, and about May 1 I went to build a house some 30 miles away from home, so I left the tending of the bees to my wife. Of course they swarmed. My wife, with the aid of a neighbor, succeeded in living two of the swarms. Everything seemed to go all right, but in about three days one of the old colonies came out, but she could not make them stay. They were hived twice, but left. In about three days the other old colony sent out a swarm, but my wife could not make them contented, and they finally left. The hives used were some old ones that I got from a friend. They have eight frames in the lower part, but did not have on any sections.

Now the four colonies which I have left seem to be all right. One of them is in a hive 12x12 and 30 inches high, with two honey-boxes of about 10 pounds each. I opened the door in front of these boxes, and the comb in them is almost empty, but I can't tell how the bottom is, altho it seems to be heavy. Must I feed them? Two of the hives are of the 8-frame kind, but there is no place on top to put any feed. There are eight frames, and then a board for a cover. Will it do any harm to take the board off and put a box on to put

feed in at this time of the year? The hives all stand on the east side of the house, with loose boards to cover them, but the bees seem to be all right.

There is one more hive which is only a box 12x18x12, with two sticks across. This I can't look into at all, altho it seems to be quite heavy. They seem to be all right, but they may not have enough to last all winter. I did not rob them during the summer.

What do you think is the best hive? ☐ KANSAS.

ANSWER.—The probability is that your colonies don't need any feeding. The box-hives are very large, and as you took nothing from them they had abundance of room to store enough for winter and to spare if the season was at all favorable. If they are heavy, as you say they are, they likely have 30 pounds or more of honey, and may be safely left. If I understand you correctly, they put honey in the boxes, then emptied it out, strong evidence that they have a good store below. The 8-frame hives are all right if hives and all weigh 45 or 50 pounds. Of course they are not so heavy now as at the beginning of winter. If you think they are not heavy enough, it will do no harm to take off the cover and put on a box with some comb honey in it, covering it up warm.

It's doubtful if anything is better than the dovetail hive.

Moving Bees—Putting on Sections.

1. I have bought 10 colonies of bees, which I wish to move two miles. They are on the summer stands with supers on. When would be the best time to move them?

2. When is the best time to put on sections in the spring? Would the queen lay in them if put on too soon? IOWA.

ANSWERS.—1. At the distance of two miles you can move them at any time, but it will be better to wait till spring, so it will be warm enough for them to fly every day. It will stir them up to move them now, so that diarrhea might be induced, unless a warm day should come right after moving them.

2. The queen is not likely to lay in them if put on too soon, but they will keep nicer and fresher off the hive. Put them on about a week after you see the first clover blossom, or as soon as you see bits of white wax along the upper parts of the brood-combs. But don't rely too much on the white wax business, and it is better to get them on too soon rather than too late.

Honey Granulation—Moving Bees—Cutting and Putting Foundation in Sections.

1. What are the causes and conditions that make honey granulate? Is there any preventive?

2. Is now a good time to move bees a short distance? They have not been flying for about eight weeks.

3. Is it all right to put foundation in sections now for next season? If so, how do you keep them?

4. In putting full sheets of foundation in 4¼x4¼ sections, what size are they cut, and how many sides of the foundation are fastened to the sections? NEW YORK.

ANSWERS.—1. There is a very great difference in honey as to granulating, some kinds almost never granulating, and some kinds granulating before it leaves the hives. I don't know any reason for this any more than the difference in honey coming from different flowers. Honey that is very ripe and thick is slow to granulate. Cold, especially freezing cold, hastens granulation. Stirring, or agitation of any kind, hastens granulation. It has been supposed that one reason why extracted honey granulates so soon is because of the thorough agitation it gets during the process of extracting.

From this you may learn that you will retard and in some cases prevent granulation if you leave it on the hives till the close of the harvest, when it is sealed and well ripened, and keep it in a place where it may be as warm as possible. Some recommend heating it up to 160° and then sealing it up, as in canning fruit.

2. Yes.

3. A few bee-keepers say they don't want foundation in sections till about the time they are to be put on the hives. I have not discovered any material harm from having them ready several months or a year in advance. As fast as foundation is filled in my sections the sections are put in the supers and piled up in the shop.

4. Generally they are cut 3¼x3¼, and fastened only at the top.

Drone-Brood and Watering Bees in Winter.

1. Here I am again. Well, I carried the five box-hives into the cellar the evening of Nov. 30, and all is fine. I have watched them very closely and find them very quiet at 45° or 50°, which I can regulate easily. I often take a lamp and peep in where the hives of bees are. One time between Christmas and New Year I noticed young white drone-brood on the alighting-board. This hive cast an after-swarm in September, and while removing sections from this hive I happened to find the young queen on top of the brood-combs, and in between my thumb and finger her wings were caught and clipped. I have seen worker-brood late in October. Why do they rear drone-brood as early as this in the cellar? Also, they don't allow me to come in their parlor department with a lamp, for when I stay in for a moment there will be one rousing buzz, and the best is to stay out. The dead bees are dragged out, but few so far. I have eight colonies in this curtained-off department.

2. The three colonies 20 miles away are not packed, and all these at home are. I find more dead bees with those 20 miles away. They or we have had no zero weather so far. They all have plenty of stores. Do you think the packed ones will winter out best? Bees had several good, brisk flights.

3. Would you supply these cellar-bees with water toward spring, by dipping a sponge in water, and lay the sponge on the alighting-board? or would you leave them alone? PENNSYLVANIA.

ANSWERS.—1. I don't know why there should be drone-brood in a hive between Christmas and New Year, unless the hive is without a proper queen, and even in that case one would hardly expect to find brood present. As the hive was cellared Nov. 30, it is barely possible that the brood is from eggs laid just before being taken in the cellar, for it may have been lying at the entrance a few days when you found it. Better keep a sharp lookout for that colony in spring.

2. It is quite likely the packed colonies will come out best.

3. At one time I tried to give my bees water in the cellar, but never succeeded in getting them to take any. In this country I don't know that any one practices watering his bees in the winter, but the Germans have a good deal to say about the winter thirst of bees (durstnoth). Whether bees are likely to be more thirsty in the German language I don't know. At any rate you better not fool with watering more than one colony till you see that the bees will take the drink.

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GENERAL ITEMS

Great Deal of Rain.

I am trying to prepare for a fine honey-flow next summer. We have been having a great deal of rain, which I imagine will be good for next season's clover.

Erie Co., N. Y., Jan. 31. E. W. BROWN.

One or Two Glasses in an Extractor.

In answering a question on page 53, Dr. Miller says: "It is doubtful if a second glass would be any improvement."

I differ from this opinion. Some 20 odd years ago, while at work devising and making a solar wax extractor that would do practical work, I experimented with and afterwards used both single and double glasses, with the result that I used double glass altogether for the last few years I was in Iowa, and should still use them were I keeping bees in any of the Northern States. If one wishes to get all the work possible out of an extractor, I think it will be well to use double glasses.

Dade Co., Fla.

O. O. POPPLETON.

A Little Girl Reports.

There was no honey to amount to anything last year, as in the spring everything was frozen down, and in the fall it was very good for a few days, but it was just long enough to get the bees good and strong for winter. I had only one colony in the spring when I wrote my last letter, and in the summer I had a new swarm, and now I have two colonies. My first colony swarmed just in the right time to get good and strong for next summer's work, if there is anything for them to work on. Pa says that they are fixt up better this winter than he has ever had them since he has kept bees. We fed them 400 pounds of sugar in the fall to get them ready for winter. My bees were carrying in water and pollen in the middle of October.

Pa says that my bees are the gentlest bees we have among our whole 75 colonies. We had only 60 colonies, spring count, and increased to 75. It is more than we have had for a good many years. In the honey season pa has them tiered 3 and 4 stories high, according to the strength of the colony; but pa put them on, and when he got ready to take them off he was fooled sure, because there was nothing in them.

I think it is a very nice business to keep bees. It is nice to work among them in the summer time. We had to work after night to take our honey, and it workt like a charm.

I guess I will close for fear this will be put into the waste-basket, and not be put into the Bee Journal at all. I am 11 years old.

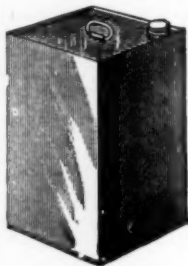
EMMA BANKER.

Brown Co., Minn., Dec. 22.

No Honey to Spare.

I have 14 colonies of bees in the cellar, and they are very quiet. The temperature is 42 degrees. I had 13 colonies last spring, and there were 4 swarms during the summer, 3 of them I hived, and the fourth, after trying for two days to hive them, were sent back to the hive they came from. They were Italians. The rest of my bees are all blacks or hybrids. One colony in the spring was robbed. I think they must have been queenless. Another was robbed in the summer. The super was taken off and emptied, and left. I know pretty well where it went to, but I did not take any pains to look it up. A third colony the bees robbed, when I went to it, supposing it was all right, I found neither bees nor honey. Another, when I was making a general examination, I found the worms had taken full possession, and it was not many days before that I had examined

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them all, or took off the covers, and everything had the appearance of being all right.

My colonies are all heavy; about 4 had a little spare honey, and the rest have all they gathered, and that was no more than the law allows. People must look to some other quarter than Minnesota for spare honey this winter.

My bees have been uglier the past season than I supposed it was possible for them to be. What little honey they stored they mixt in with pollen, as tho it was done on purpose for the millers to work on. Pollen makes a millers' paradise.

J. V. B. HERRICK.

Hennepin Co., Minn., Jan. 4.

Unite to Down Adulteration.

I am glad to see that the bee-keepers of the United States have seen fit to have grit enough to raise a voice against the burden of adulteration. I see by the Bee Journal that there are so many bee-keepers who are farmers, and as I am a farmer myself, I think if farmers and bee keepers could only bring their heads together as a body, and bring this dreadful adulteration business to a higher point in the minds of the people, I firmly believe that something could be done. We know there is no class of people that is defrauded more than the farmer and the bee-keeper, for they try to raise a pure article for an honest living, and for the welfare of the masses of the people, but they are headed off by adulteration or imitation. The farmer is the victim of adulteration from the fertilizer he buys to raise his crops with down to the pepper he uses on the table; and the bee-keeper is cheated on every hand. Fellow-men, let us put the brake on that destructive wheel.

GEORGE SAGE.

Greene Co., Ind., Dec. 24.

A Good Year for Honey.

The past was a good year for bees in this part of Iowa. My bees came out of the cellar in good condition. Three starved to death in the cellar, and one spring dwindled. It was the worst spring for robbing I ever saw. I had to cover lots with hay. The best way I have found to stop robbing is to cover the hive with a sheet, and occasionally turn it.

It paid last year to send South to get 50-cent queens. The colonies of the queens I got from there did not swarm. From several of them I got 168 sections of honey, and from the best of my own I got a little over 100. I got 11,000 pounds of honey, 1,700 being comb and the rest extracted. I think that is pretty good from 89 colonies

in the spring and 138 in the fall. The mistake I made was leaving my fall honey to extract late in the fall, only finishing extracting Dec. 16, and it was candied badly.

I always winter my bees in the cellar, and in cold weather I always have a fire over them night and day. The chimney comes from the bottom of the cellar, and has a six-inch hole in it for ventilation. I put one-inch blocks under the front of the hives to raise them from the bottom-boards. I never lose a good colony unless they starve to death. **CHAS. BLACKBURN.**
Buchanan Co., Iowa., Dec. 18.

Report for Last Season.

I had nine colonies last spring in the Higginsville hive and three in box-hives. I increased to 13 by natural swarming, and extracted 1,200 pounds of nice honey, with 300 pounds of comb honey. My bees did well. We had a drouth which cut off the fall flowers, or I would have gotten a larger yield. My bees were in good condition to go through the winter. I have them packed on top, on both sides and one end, with the open fronting southeast. I have no cellar, so I winter them on the summer stands.

I have been taking the Bee Journal for a little over a year, and I owe my success to it in managing my bees. I would not be without it for double its cost. I hope the United States Bee-Keepers' Union will be a success. I would like to see the two Unions united. I think they could do better work, as it would be stronger and better able to fight the enemies of the pursuit.

W. S. SMITHEY.

Monroe Co., Mo., Dec. 20.

Bee-Conventions and Fairs.

I do not want to be clast among the critics, but I noticed the report on page 821 (1897), by J. F. West, President of the Minnesota Bee-Keepers' Association, that met in St. Paul, Dec. 8, 1897, one day and then adjourned. Well, perhaps they did the right thing to decide to meet in St. Paul the same time that the State fair meets, but at the time of the fair you will find that you must neglect either one or the other. To have your exhibit will be all right, but to have a convention at the same time you will find that you will neglect both. As Mr. West says, a great many members are horticulturists; very true, and that is the very reason they cannot do justice to both. As far as the reduced rates are concerned, that part is all right. It is a better season of the year, I will acknowledge, but we had an experience with the Southern Minnesota Bee-Keepers' Association; we appointed the time of meeting at the same time the

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That covers the whole Apicultural Field more completely than any other published, send \$1.25 to Prof. A. J. Cook, Claremont, Calif., for his

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Liberal Discounts to the Trade.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-Frames

Thin Flat-Bottom Foundation

Has No Fishbone in the Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made

J. A. VAN DEUSEN,

Sole Manufacturer,
Spartan Brook Montgomery Co., N. Y.

Please mention Bee Journal when writing.

BEE-KEEPERS! Let me send you my 64-page Catalog for 1898.
J. M. Jenkins, Wetumpka, Ala.

Please mention Bee Journal when writing.

Street Fair in Winona was held last fall, and the result was that we unanimously decided that we wanted no more conventions at the time of a fair.

In the first place, those very men that are interested in horticulture and bee-keeping are bound to neglect one or the other, and the one that they neglect is the convention. Such was our experience. Men that at other conventions would be on time and the sessions were too short for them, during the fair they would come in the convention, stop a few minutes, and then they were absent for the rest of the day; then the man that has bees, honey, tools, and supplies on exhibition can put his time in at his place of exhibit, in answering questions, as there is nothing that attracts the attention of the sight-seers as an observatory hive with a colony of bees in it. There are so many that never saw the inside of a bee-hive, and when they see the bees and honey they become perfectly excited. I had on exhibition a hive with glass sides and top, with screen front, and one man was not able to answer all the questions that were asked about the bees. I had a hive standing by the side of it, but empty, just to show the condition the hive was in when the bees took possession of it, but I could only be present until 8:30 in the morning, and then half an hour at noon, and about the same time in the evening. Thus you see we had to neglect the fair in order to transact the business of the convention.

The fairs and exhibitions are all right, but my experience is that they do not work well together, for when you get too many irons in the fire some of them are bound to get too hot.

I could not think of doing without the Bee Journal, and would advise all beekeepers to subscribe for it; I often find one article that is worth more than double the year's subscription.

I put 31 colonies into winter quarters, and they seemed all right before putting them away. I took a scale on a wheelbarrow, and went through my apiary and weighed every hive and marked the weight upon the hive, and in the spring when I put them on the summer stands I will weigh them again. By so doing I will ascertain what amount of honey they will have consumed.

We are preparing for next season, getting everything in shape; also for the Southern Minnesota Bee-Keepers' Association, which meets Oct. 22 and 23, 1898. I have been stirring up our members to prepare their little speeches for that occasion, as the long winter nights give us plenty of time to think and write, and every beekeeper should improve the opportunity.

E. B. HUFFMAN.

Winona Co., Minn., Dec. 30.

Fine New Hampshire Honey.

I must have the Bee Journal. I would not want to go without that and try to keep bees. The experiences of others are a great help to me.

I had nine colonies in the spring of 1897, and have 17 now. I had 265 sections of as fine honey as New Hampshire can produce. I sold over 150 for 18 and 20 cents each.

I love my bees, but what kind they are I have yet to learn. There is no particular honey-plant around here.

MRS. RUA A. FIFIELD.

Cheshire Co., N. H.

Worms in Honey—Laying Workers.

Perhaps this may be the last year that I shall be able to take the Bee Journal, for the reason that I am not able to care for my bees properly, on account of my age. My next birthday, if I live until then, I shall be 88 years old. I shall have to give it up for my health is poor, not able to care for them properly. I am able to do but little work of any kind. If I live this will be the last year that I shall try to keep bees. I have kept them over 50 years, and have taken the Bee Journal the most of that time.

I have read of some complaining about

Cash PAID FOR Beeswax

For all the Good, Pure Yellow Beeswax delivered to our office till further notice, we will pay 25 cents per pound, CASH. No commission. Now if you want cash, promptly, for your Beeswax, send it on at once. Impure wax not taken at any price. Address as follows, very plainly,

GEO. W. YORK & CO.
118 Michigan st., CHICAGO, ILL.



BEE-KEEPERS' SUPPLIES!
Largest and Best equip
Factory in the
SOUTH-WEST.

Send for Catalog.

FRED A. DALTON,
1A26t WALKER, Vernon Co., Mo.
Please mention Bee Journal when writing.

BEES FOR SALE.

About 90 Colonies of Italians. Any one wanting to start an apiary cannot do better than to call on Dr. E. Gallup, Santa Ana, Calif., and examine the Bees before purchasing elsewhere. Double sets of Combs in Langstroth-Simplicity Hives, and warranted a superior lot of Bees for business. Correspondence solicited.
Dr. E. GALLUP,
SANTA ANA, Orange Co., CAL.

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WATCH POWDER'S AD

SEE THAT WINK!

Bee - Supplies! ROOT'S
GOODS at ROOT'S Prices.

Powder's Honey - Jars,
and every thing used by
bee-keepers. Prompt service,
low freight rate. Cat-
tree. **Walter S. Powder,**
512 MASS. AVE.,
INDIANAPOLIS, INDIANA.

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FIRST PRIZE WINNERS

Our 1898 Mammoth Poultry
Guide of 100 pages mailed FREE.
Something entirely new, tells all about
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BIG MONEY. Contains beautiful lithograph
plate of fowls in their natural colors. Send
15 cts. for **JOHN BAUSCHER, JR.,**
postage. Box 94 FREEDPORT, ILL.

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has a hobby which is the sheep breeder and his industry, first foremost and all the time. Are you interested? Write to-day

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NO DIRT LEFT

In clothes washed with the
"BUSY BEE WASHER,"
100 pieces in one hour and
no hard work done. That's
the record. **AGENTS**
WANTED. Exclusive
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we sell. Are not those reasonable terms?
That shows you how much faith we have
in our machines. Either HOT WATER
or HOT AIR machines. A child can work
them. Eleven year on the market.

THE MARILLA INCUBATOR CO.
Catalog 4c, stamps. Box 20 Marilla, N. Y.

4E4t Please mention the Bee Journal.

worms getting in their honey after it was taken from the hives. When I take honey from the hives, for several years, I have kept it in a small room. I get a number of stalks of green tansy, and spread it on the floor, then put the cases of honey on the tansy. I have not found any worms or ants on my honey for a number of years. This may be of some use to young beekeepers.

All the way that I can tell when there is a laying worker in a hive is by the number of eggs in a cell. When I find that, I find no queen. My hives are all numbered. For instance, there is a laying worker in No. 1, and Nos. 10 or 20 are good, strong colonies; I take No. 1 and set it where No. 10 stood, in the middle of the day when the bees are flying well, and change places of the hives. When the bees from No. 10 come in from the fields they go into No. 1. They kill the laying worker. I have gotten rid of 5 laying workers in this way in about two hours. This may be of some benefit to some new beekeepers.

Wm. C. WOLCOTT.

Winnebago Co., Wis.

Second Wintering Experience.

I am very much interested in the American Bee Journal. I can hardly wait for Friday morning to come, as that is the time for it.

This is my second wintering of bees. I now have five colonies; I had three colonies in the spring, transferred all, had two swarms, and got about 100 pounds of comb honey.

NORMAN O. JARVIS.

Madison Co., N. Y.

Bees Did Well.

Bees did well here in swarming as well as in honey-gathering. They nearly doubled by natural swarming. Some of the swarms produced as high as 50 pounds of honey. Of fall honey we got none, as the dry weather put an end to all honey-gathering. The fall of 1896 was the best we had since the pioneer days of this country. Honey-gathering held out splendidly until really natural ripeness put slowly an end to all flowering of plants.

FRANK HENTRICK.

Sac Co., Iowa.

The Nickel Plate Road

will sell excursion tickets to Cleveland and return at \$8.50 for the round-trip, account of Students' Volunteer Movement for Foreign Missions, Cleveland, O., February 23-27, 1898. Tickets will be sold February 22nd and 23rd, good returning up to and including February 28th. Three through trains daily in each direction. Day coaches in charge of colored porters. Every facility afforded for the comfort of the travelling public. City Ticket Office, 111 Adams St.; Depot, corner 12th and Clark Sts.; Telephone, Main 3389. (1)



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Given as Bounties
to purchasers of the
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Hives and Sections
See schedule in my
bee-book "Facts
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how to produce honey that sells for the most money. Free for 2c in stamps. Address

THE A. I. ROOT CO., Medina, Ohio,
or F. DANZENBAKER, Box 460, Washington, D. C.

Please mention Bee Journal when writing.



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California

If you care to know of its Fruits, Flowers
Climate or Resources, send for a Sample Copy
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We have a limited number of barrels
of very best Basswood Extracted
Honey, weighing NET about 280 lbs.
which we are offering at 6 cents per lb.
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or so of it? If so, address, with the cash,

GEORGE W. YORK & CO.,
CHICAGO, ILLS.

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ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four
men using hand tools, in
Ripping, Cutting-off, Mit-
ring, Rabbeting, Groov-
ing, Gaining, Dadoing,
Edging-up, Jointing Stuff,
etc. Full Line of Foot and
Hand Power Machinery.
Sold on Trial. Catalogue Free.

SENECA FALLS MFG. CO.,
46 Water St. SENECA FALLS, N. Y.
Please mention Bee Journal when writing.

READY TO MAIL

My 40-page Catalog of my Specialties, and
Root's Goods at their prices. I carry a
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GEO. E. HILTON, Fremont, Mich.
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On account of almost total loss of eyesight
I am compelled to offer my fruit ranch and
apiary for sale or exchange. For further par-
ticulars address **E. B. BECHER,**
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Bee-Hives, Sections, Shipping-
Cases—everything used by bee-
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KEEPERS' SUPPLY MFG. CO.,** Nicollet
Island, Minneapolis, Minn.

22 Atf **CHAS. MONDENG, Mgr.**
Please mention Bee Journal when writing.

WANTED—Situation. A young man of
5 years' experience would like a position
to care for bees. Can furnish reference.
Address, **Dick Camp, Holland, Mich.**
Please mention Bee Journal when writing.

We PAY CASH each WEEK the year round, if
you sell Stark Trees. Outfit free.
STARK NURSERY, LOUISIANA, MO., Stark, Mo., Rockport, Ill., Danville, N. Y.
Please mention Bee Journal when writing.

One Fare for the Round-Trip

via Nickel Plate Road, to Cleveland and
return February 22nd and 23rd, 1898,
account Students' Volunteer Movement
for Foreign Missions. Return limit Feb-
ruary 28th. City Ticket Office, 111
Adams St.; Depot, corner Clark and
12th Sts.; Telephone, Main 3389. (2)

Bee-Keeper's Guide—see page 92.

HONEY and BEESWAX

MARKET QUOTATIONS.

Chicago, Ill., Feb. 1.—Fancy white, 11 to
12c. No. 1, 10c.; fancy amber, 8 to 9c.; No. 1,
7c.; fancy dark, 7c. Extracted, white, 5 to 6c.;
amber, 4 to 5c.; dark, 4c. Beeswax, 28 to 27c.

The demand for comb honey is not satisfac-
tory, and it can be bought at even lower
prices than quoted, where it is not in the
hands of regular dealers. There seems to be
no outside demand. Extracted without special
change. Beeswax is scarce.

Milwaukee, Wis., Jan. 24.—Fancy white
1-lbs., 11 to 12c.; A No. 1, 11 to 11½c.; No. 1,
10 to 11c.; No. 2, 8 to 9c.; No. 1 dark, 8 to 9c.
Extracted, in barrels, kegs and cans, white,
5½ to 6c.; dark, 5 to 5½c.

The supply of honey is good and the quality
very nice as a general thing. The demand is
not up to our desires, yet we are hopeful it
will improve and all will be wanted at fair
value. We feel like sustaining prices, and
continue to quote as above.

Cleveland, Ohio, Dec. 15.—Fancy white,
12 to 12½c.; No. 1, 11 to 12c.; No. 1 amber,
9 to 10c. Extracted, white, 6 to 7c.; amber, 4
to 5c. Beeswax, 22 to 25c.

New York, N. Y., Dec. 22.—Fancy white
11 to 11½c.; off grades, 9 to 10c.; buckwheat
and mixt, 6½ to 7c. Extracted, California
white, 5 to 5½c.; light amber, 4½ to 4¾c.;
white clover and basswood, 5 to 5½c.; buck-
wheat, 4 to 4½c.; Southern, 50c. a gallon.
Beeswax is in good demand at 25 to 27c.

Our market remains quiet. Fancy grades
of white comb are about cleaned up, and
these would find sale on arrival at quotations.
We have a large stock of buckwheat, mixt,
and off grades of white, and, as the demand
for these is very light, we cannot encourage
further shipments for the near future. Ex-
tracted of all kinds is selling fairly well.

Minneapolis, Minn., Jan. 31.—Market
is in an overloaded condition on comb honey.
Good chance for fancy white extracted at 5½
to 6c., but comb is at a standstill, particularly
if other than fancy white. Best price avail-
able on fancy white comb is 10½c., and buyers
are slow at that. Darker grades or broken
lots are unsalable. If shippers would send in
their extracted when it is wanted, and not
push undesired comb (and vice versa) the
stuff would move more advantageously to all
concerned. The trouble is, when a fair price
is obtainable some shippers hold out for more
and in the end lose by it.

Buffalo, N. Y., Jan. 14.—Strictly fancy 1-
pound comb honey is more active at mostly
10c., occasionally 11c., but all other grades
are dormant and have to be cut to almost any
price to move them, ranging from 8c. down
to 5c. Extracted is also very dull at 4 to 6c.
We cannot recommend the shipping of honey
here unless it is strictly fancy 1-pound sec-
tions.

There is no selling pressure of consequence
on desirable lots of water white, either comb
or extracted, such being held as a rule at full
quotations. Amber grades are in greater sup-
ply than the demand, and market for this
class presents an easy tone. Dark qualities
are in poor request, despite low asking fig-
ures. Beeswax is firm at current quotations,
with very little offering, either from first or
second hands.

St. Louis, Mo., Jan. 17.—We quote honey
nominal, but very little selling. Demand is
light. White comb, 1-lbs., 10 1-2 to 12c.;
amber, 8 to 10c.; dark, 5 to 7c.; broken comb,
4 to 7c. Extracted, in cans, white, 5½ to
5 1-2c.; light amber, 4½ to 5c.; amber, 4½ to
4 1-2c.; dark, 3 1-2 to 4c. Beeswax, 25 to
25 1-2c. To sell honey in lots above prices
would probably have to be shaded a little.

Detroit, Mich., Feb. 1.—Fancy white, 11
to 13c.; No. 1, 10 to 11c.; fancy amber, 9 to
10c.; No. 1, 8 to 9c. Darker grades are sell-
ing lower and in better supply and can be
bought at 6 to 7c. Extracted, white, 5 to 6c.;
darker grades, 4 to 5c. Beeswax is in good
demand at 28 to 27c.

Indianapolis, Ind., Jan. 15.—Fancy white,
11 to 13c.; No. 1, 10 to 11c.; fancy amber, 9 to
10c. Extracted, white, 5 to 6c. Beeswax, 25
to 27c. Market appears to be well supplied
and sales are rather slow for this time of the
year. This is especially true of the amber
and dark grades of comb honey. Beeswax is
in good demand.

Kansas City, Mo., Jan. 20.—Fancy white,
10 to 11c.; No. 1, 10c.; amber, 9 to 10c.; dark,
8 to 9c. Extracted, white, 5½ to 6c.; amber,
5 to 5½c.; dark, 4 to 4½c. Beeswax, 20 to 22c.
The market is well supplied, and demand is
light.

Boston, Mass., Jan. 18.—Fancy, in car-
tons, 12½ to 13c.; in glass, 11 to 12c.; A No.
1, 10 to 11c.; No. 1, 9c.; No. 2, 8c.; No. 3, no
sale. Beeswax, 27c.
The demand for honey is light on all grades,
with a full supply. Pure beeswax is in good
demand, but supply is light.

Philadelphia, Pa., Jan. 18.—Fancy white,
10c.; No. 1, 9c.; amber, 8c. Extracted, white,
5c.; amber, 4c.; dark, 3½c. Beeswax, 28c.
Late arrivals of California honey have de-
moralized our market.

Cincinnati, Ohio, Jan. 17.—There is no
change in prices, but rather a slow demand
for all kinds of honey. We quote 10 to 13c.
as the range of prices for best white comb
honey, and 3 1-2 to 6c., for extracted, accord-
ing to quality. Beeswax is in fair demand at
25 to 27c. for good to choice yellow.

San Francisco, Calif., Dec. 8.—White
comb, 1-lbs., 7½ to 9½c.; amber, 4 to 6c. Ex-
tracted, white, 4½ to 4¾c.; light amber, 3½
to 3¾c.; dark tulle, 1½ to 2¼c. Beeswax,
fair to choice, 22 to 24c.

List of Honey and Beeswax Dealers.

Most of whom Quote in this Journal.

Chicago, Ills.

R. A. BURNETT & Co., 163 South Water Street.

New York, N. Y.

HILDRETH BROS. & SEGLER,
120 & 122 W. Broadway.

Kansas City, Mo.

C. C. CLEMENS & Co., 423 Walnut St.

Buffalo, N. Y.

BATTERSON & Co., 167 & 169 Scott St.

Hamilton, Ills.

CHAS. DADANT & SON.

Cleveland, Ohio.

A. B. WILLIAMS & Co., 80 & 82 Broadway.

Philadelphia, Pa.

WM. A. SELSER, 10 Vine St.
Mr. Selser handles no honey on commission

St. Louis, Mo.

WESTCOTT COM. CO., 213 Market St

Minneapolis, Minn.

S. H. HALL & Co.

Milwaukee, Wis.

A. V. BISHOP & Co.

Boston, Mass.

BLAKE, SCOTT & LEE, 57 Chatham Street.

Detroit, Mich.

M. H. HUNT, Bell Branch, Wayne Co., Mich.

Indianapolis, Ind.

WALTER S. POWDER, 162 Massachusetts Ave.

Albany, N. Y.

CHAS. McCULLOCH & Co., 380 Broadway.

Cincinnati, Ohio.

C. F. MUTH & SON, cor. Freeman & Central Aves.

All for the Fruit-Grower.—After
a careful examination of the 1898 catalog
issued by Reid's Nurseries, Bridgeport,
Ohio, we wish to say that it is one of the
most complete catalogs (devoted entirely
to the nursery), tastily arranged and illus-
trated that come to our desk. There are
no catch-penny schemes in it, but it is
sound business from cover to cover, noth-
ing over-drawn, but the plain truth boiled
down, and beautifully illustrated with
many costly engravings. They have done
away with the highly-colored covers, that
are now being sent out, and instead they
have opened the way to a new field, giving
their customers something of art and
beauty—something that is new and re-
fined. If you need anything in the nur-
sery line, send your name and address for
their catalog, not forgetting to mention
that you saw their advertisement in the
old American Bee Journal.

FREE —A Copy of—
Successful Bee-Keeping,
 by W. Z. Hutchinson;
 and our 1897 Catalog, for 2-
 cent stamp, or a copy of the
Catalog for the Asking. We make almost
Everything used by Bee-Keepers, and at
Lowest Prices. OUR

Falcon Polished Sections

are warranted
Superior to All Others.

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 when you can have the best—such as we
 make.

The American Bee - Keeper

[monthly, now in its 7th year]

36 Pages—50 Cents a Year.

SAMPLE FREE—ADDRESS,

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JAMESTOWN, N. Y.

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105 Park Place,

is the street,

I. J. STRINGHAM,

is the man

Who is prepared to ship you, on short no-
 tice, **anything** in the apiarian line.

Are YOU the man who wants to buy?

Send for Catalog, anyway.

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CARLOADS—



Of Bee-Hives, Sections, Ship-
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 and **Everything** used in the
 Bee-Industry.

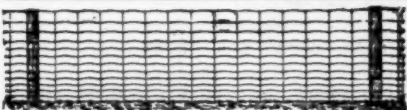
We want the name and ad-
 dress of every Bee-Keeper in
 America. We supply Deal-
 ers as well as consumers. We
 have Dry Kiln, Improved Machinery, 40,000
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 We make prompt shipment.

Write for Catalogs, Quotations, etc.

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A Spring at Each End

of a wire mattress won't do. It must "give"
 wherever one chances to touch it. So in wire fence,
 the spring is needed wherever the shock may come.
 The continuous coil principle is the only solu-
 tion, and it belongs to us only. See "ad" in next
 issue.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

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COMB FOUNDATION Wholesale
 and Retail.

Working Wax into Founda-
 tion for CASH A Specialty.

Hives, Sections, and a full line of Supplies.
 The best of everything. Write for Catalog,
 with prices, and samples of Foundation and
 Sections.

BEESWAX always wanted for cash or
 trade.

GUS DITTMER,
AUGUSTA, WIS.

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The A. I. Root Co.'s Goods Wholesale
 and Retail.

Including their discounts for Goods wanted
 for use another season. It will pay you to
 send me list of Goods wanted. **M. H. HUNT**
 Cash for Beeswax. **BELL BRANCH, MICH.**

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21st Year **Dadant's Foundation.** 21st Year

Why Does It Sell So Well?

Because it has always given better satisfaction than any other.

Because **IN 21 YEARS** there have not been any complaints, but thou-
 sands of compliments.

We Guarantee Satisfaction.

What more can anybody do? **Beauty, Purity, Firmness, No Sag-
 ging. No Loss. PATENT WEED PROCESS SHEETING.**

Send Name for Our Catalog, Samples of Foundation and Vell Material. We
 sell the best VELLs, cotton or silk.

BEE-KEEPERS' SUPPLIES OF ALL KINDS.

LANGSTROTH ON THE HONEY-BEE, Revised.

The Classic in Bee-Culture—Price, \$1.25, by mail.

CHAS. DADANT & SON,

Please mention the Am. Bee Journal.

HAMILTON, Hancock Co., ILL.

OUR MOTTO—"Well Manufactured Stock! Quick Shipments!"

**SECTIONS, SHIPPING-CASES,
 AND
 BEE-KEEPERS' SUPPLIES.**

We make a specialty of making the very best Sections on the market.
 The **BASSWOOD** in this part of Wisconsin is acknowledged by all to be the
 best for making the **One-Piece Honey-Sections**—selected, young, and
 thrifty timber is used.

Write for Illustrated Catalog and Price-List FREE.

MARSHFIELD MFG. CO., Marshfield, Wis.

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We Are the People *****

—WHO CAN TURN OUT—

FENCES (Cleated Separators)

—AND—

PLAIN SECTIONS

(Sections without Insets)

FOR 1898.

Having special appliances and machinery, we can make them right. Nothing in
 late years has seemed to stir such a furor

in the Bee-Keeping World as these Goods.

If you don't know about them, send to

THE A. I. ROOT CO.

MEDINA, OHIO.

New 1898 Catalog Largely Re-written. Send for free copy.